

OXC-0432-60
COPY 3 OF 3

31 March 1960

Dear Dick:

PROGRESS REPORT #7

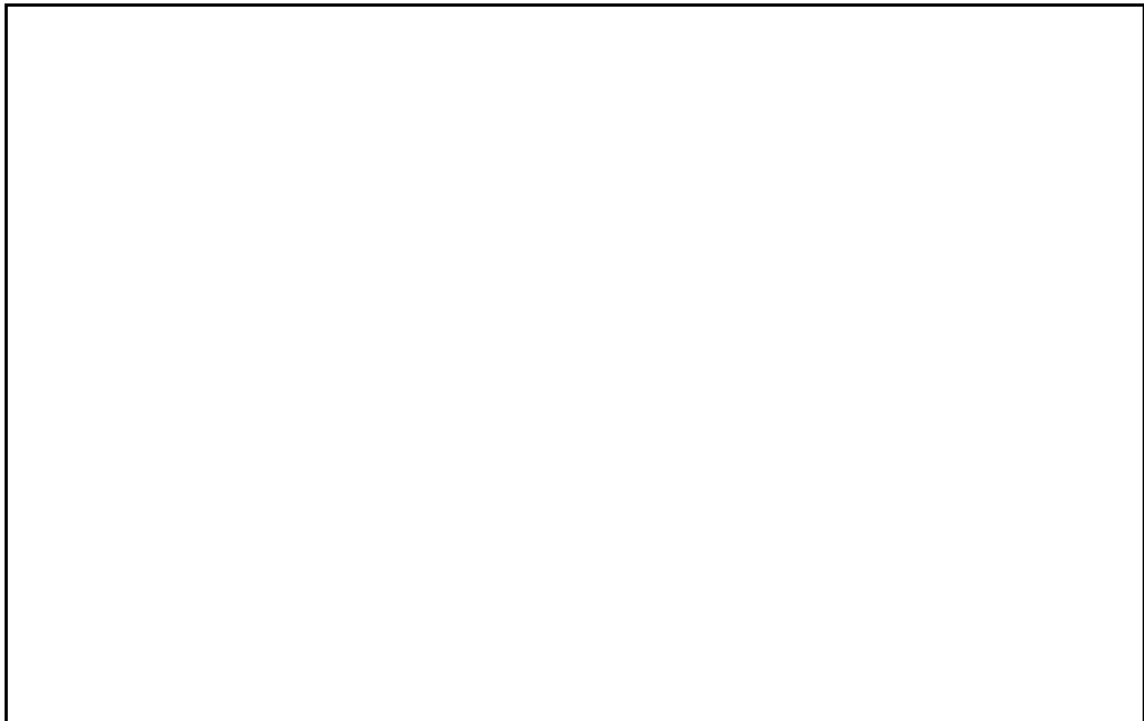
During the month of March, considerable progress was made on the development of the OXCART aircraft. On 29 and 30 March, a suppliers' meeting was held at this contractor's facility and a detailed discussion held on all the major problems connected with the aircraft power plant and probable operating base. Therefore, this report will cover only a brief resume of the project status.

Mr. Parangosky was given the following reports:

- 2 copies of SP-160, a comparison of Perkin-Elmer and Baird-Atomic periscope development costs.
- 2 copies of a study concerning the revision of the B camera, to operate in the OXCART aircraft.
- 1 book of photos on the high temperature model for Langley wind tunnel tests.
- 1 book of pictures on the status of the fuel system test rig.
- 1 copy of a letter regarding NASA personnel at Langley who might have to be cleared for the forthcoming high temperature tests.

To summarize the major development aspects of the aircraft, the following applies:

1.



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The problem of engine additive at altitude will not be commented on in this report, but it was fully discussed during the recent meeting.

2. Aerodynamic Testing.

We have completed the major series of tests on development of the inlet duct, with very satisfactory results. Further high speed testing will be undertaken during the month of April in the N. A. S. A. facility at Langley Field. The purpose of these tests will be to measure temperatures and pressure distribution on a steel model.

3. Engineering Status.

Approximately 340 drawings have been released on structure Some engineering overtime is being worked, but current schedules are in hand. Main forging drawings have been sent to the Titanium Metals Corp. for obtaining landing gear billets. The engineering mockup has been practically completed. Daily contact with various vendors is solving the problems of correlation and development of suitable specifications for such items as inlet spike control, autopilot, stability augmentors, air conditioning, and a host of other systems.

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Correlation with P&W continues to be excellent. Redesign is necessary for the accessory gearbox, to provide adequate power during idle descent. The problem of installation of the pyrophoric ignition system is being studied from the safety-in-handling point of view. We are concerned about the type of engine oil being used and the necessity for maintaining it at about 60° or 70°F.

The fuel system test tank has been completed and placed in the revetment for tests. Work on the problem of instrumentation, obtaining of pumps, and such gear, goes on apace.

4. Manufacturing.

Manufacturing, particularly in the tooling aspect, is accelerating quickly. Some of the major jig frames are partially built, and over 100 people are employed in the tooling section. Actual aircraft parts are being fabricated and should show up in the nose section jig within the next ten days. Supplies of titanium material have been obtained but, due to the necessity of extremely close tolerances and quality control, each sheet must be cleared prior to being used for parts. Current plans call for making and testing approximately 18,000 static test coupons in the next three or four months. This rate of testing will be discontinued or, rather, reduced when it has been shown that consistent material characteristics can be obtained. Training of the inspection group and the workmen, not only in handling the material but also in the cost factors, is proceeding well. Orders have been placed for a supply of titanium bolts approximating [REDACTED] Heat treat facilities are partially in place, with some operating and all of them scheduled for operation within a month.

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5. Weather Factors.

Information provided us by Colonel Geary, through the Air Force Weather Service, indicates that the temperature conditions at the expected operating altitudes can vary substantially from what has been considered normal. It appears that, in general, the temperatures can deviate more on the cold side than on the hot side of the ARDC standard altitude temperatures. They can also change rapidly in a distance of several hundred miles at a given pressure altitude. The pressure altitude at a given true height can apparently vary as much as 8,000 to 10,000 feet over the northern latitudes. These variations of temperature and pressure were pointed out to the representatives at the suppliers' meeting on 29 March. In view of the major effects they will have on the design of the aircraft power plant and systems, definite action to evaluate and design for these variations must be taken by all concerned. Our first operation will be to evaluate the effect on aircraft performance as soon as we can get engine data from P&W.

6. Decisions and Action Required from the Customer.

The following items were discussed with Messrs. John Parangosky, Jim Cunningham, [] and Col. Leo Geary:

a.

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- b. The problem of the security setup at [] for making our various landing gear forgings in an enclosed area, requires action.
- c. A decision is required on the clearance of Langley personnel for the temperature testing to be done there shortly.
- d. Definite action should be taken to save the F-104 test sled and instrumentation, in order to evaluate the A-12 suit, seat, and survival gear at a later date.
- e. An Air Force officer familiar with Arctic refueling operations and problems of communication between a KC-135 and the aircraft to be refueled should be made available for consultation with us in Burbank at the earliest possible date. We will need his advice and counsel on all phases of the refueling problem.
- f. The height of the hangar extensions [] should be increased six feet and the doors revised. The writer regrets that, when the method of removing the engines in the aircraft was changed, he did not advise you of the effect on the building height. We are coordinating these problems now with []

Sincerely,

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cc: E.K.
J. P. ✓